

thm_2Ebag_2EPSUB__BAG__IRREFL
(TMWhvFQNJskqAau6p53JzboKjuUEMMs6jjx)

October 26, 2020

Let $ty_2Enum_2Enum : \iota$ be given. Assume the following.

$$nonempty\ ty_2Enum_2Enum \tag{1}$$

Definition 1 We define $c_2Emin_2E_3D$ to be $\lambda A.\lambda x \in A.\lambda y \in A.inj_o (x = y)$ of type $\iota \Rightarrow \iota$.

Definition 2 We define $c_2Ebool_2E_2T$ to be $(ap (ap (c_2Emin_2E_3D (2^2)) (\lambda V0x \in 2.V0x)) (\lambda V1x \in 2.V1x))$

Definition 3 We define $c_2Ebool_2E_21$ to be $\lambda A.27a : \iota.(\lambda V0P \in (2^{A-27a}).(ap (ap (c_2Emin_2E_3D (2^{A-27a}))$

Definition 4 We define $c_2Ebool_2E_2F$ to be $(ap (c_2Ebool_2E_21 2) (\lambda V0t \in 2.V0t))$.

Definition 5 We define $c_2Emin_2E_3D_3D_3E$ to be $\lambda P \in 2.\lambda Q \in 2.inj_o (p \Rightarrow q)$ of type ι .

Definition 6 We define $c_2Ebool_2E_27E$ to be $(\lambda V0t \in 2.(ap (ap c_2Emin_2E_3D_3D_3E V0t) c_2Ebool_2E_2F$

Definition 7 We define $c_2Ebool_2E_2F_5C$ to be $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c_2Ebool_2E_21 2) (\lambda V2t \in 2.V2t))$

Let $c_2Enum_2EREP_num : \iota$ be given. Assume the following.

$$c_2Enum_2EREP_num \in (\omega^{ty_2Enum_2Enum}) \tag{2}$$

Let $c_2Enum_2ESUC_REP : \iota$ be given. Assume the following.

$$c_2Enum_2ESUC_REP \in (\omega^{\omega}) \tag{3}$$

Let $c_2Enum_2EABS_num : \iota$ be given. Assume the following.

$$c_2Enum_2EABS_num \in (ty_2Enum_2Enum^{\omega}) \tag{4}$$

Definition 8 We define c_2Enum_2ESUC to be $\lambda V0m \in ty_2Enum_2Enum.(ap c_2Enum_2EABS_num (c_2Enum_2ESUC_REP m))$

Definition 9 We define $c_2Emin_2E_40$ to be $\lambda A.\lambda P \in 2^A.if (\exists x \in A.p (ap P x)) \text{ then } (the (\lambda x.x \in A \wedge P x))$ of type $\iota \Rightarrow \iota$.

Definition 10 We define `c_2Ebool_2E_3F` to be $\lambda A_{.27a} : \iota. (\lambda V0P \in (2^{A_{.27a}}). (ap\ V0P\ (ap\ (c_{.2Emin}_{.2E_40}$

Definition 11 We define `c_2Eprim_rec_2E_3C` to be $\lambda V0m \in ty_2Enum_2Enum. \lambda V1n \in ty_2Enum_2Enum$

Definition 12 We define `c_2Earithmetic_2E_3E` to be $\lambda V0m \in ty_2Enum_2Enum. \lambda V1n \in ty_2Enum_2Enum$

Definition 13 We define `c_2Ebool_2E_5C_2F` to be $(\lambda V0t1 \in 2. (\lambda V1t2 \in 2. (ap\ (c_{.2Ebool}_{.2E_21}\ 2)\ (\lambda V2t \in$

Definition 14 We define `c_2Earithmetic_2E_3E_3D` to be $\lambda V0m \in ty_2Enum_2Enum. \lambda V1n \in ty_2Enum_2Enum$

Definition 15 We define `c_2Ebag_2EBAG_INN` to be $\lambda A_{.27a} : \iota. \lambda V0e \in A_{.27a}. \lambda V1n \in ty_2Enum_2Enum$

Definition 16 We define `c_2Ebag_2ESUB_BAG` to be $\lambda A_{.27a} : \iota. \lambda V0b1 \in (ty_2Enum_2Enum^{A_{.27a}}). \lambda V1b2 \in$

Definition 17 We define `c_2Ebag_2EPSUB_BAG` to be $\lambda A_{.27a} : \iota. \lambda V0b1 \in (ty_2Enum_2Enum^{A_{.27a}}). \lambda V1b2 \in$

Assume the following.

$$True \tag{5}$$

Assume the following.

$$\forall A_{.27a}. nonempty\ A_{.27a} \Rightarrow (\forall V0t \in 2. ((\forall V1x \in A_{.27a}. (p\ V0t)) \Leftrightarrow (p\ V0t))) \tag{6}$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2. (((True \wedge (p\ V0t)) \Leftrightarrow (p\ V0t)) \wedge (((p\ V0t) \wedge True) \Leftrightarrow \\ & (p\ V0t)) \wedge (((False \wedge (p\ V0t)) \Leftrightarrow False) \wedge (((p\ V0t) \wedge False) \Leftrightarrow False) \wedge \\ & (((p\ V0t) \wedge (p\ V0t)) \Leftrightarrow (p\ V0t)))))) \end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned} & ((\forall V0t \in 2. ((\neg(\neg(p\ V0t))) \Leftrightarrow (p\ V0t))) \wedge (((\neg True) \Leftrightarrow False) \wedge \\ & ((\neg False) \Leftrightarrow True))) \end{aligned} \tag{8}$$

Assume the following.

$$\forall A_{.27a}. nonempty\ A_{.27a} \Rightarrow (\forall V0x \in A_{.27a}. ((V0x = V0x) \Leftrightarrow True)) \tag{9}$$

Theorem 1

$$\begin{aligned} & \forall A_{.27a}. nonempty\ A_{.27a} \Rightarrow (\forall V0b \in (ty_2Enum_2Enum^{A_{.27a}}). \\ & (\neg(p\ (ap\ (ap\ (c_{.2Ebag}_{.2EPSUB_BAG}\ A_{.27a})\ V0b)\ V0b)))) \end{aligned}$$